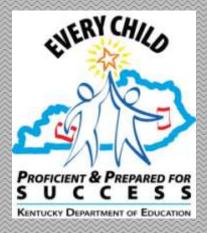KCAS

Curriculum Shifts
Kentucky Department of Education

The Curriculum Shifts document contains changes that are new in the Kentucky Core Academic Standards . These changes are compared to the concepts in Core Content for Assessment 4.1 . This document shows concepts that have been shifted/moved to a different grade level in the Kentucky Core Academic Standards for Mathematics. This should not be considered an exhaustive list.

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KENTUCKY DEPARTMENT OF EDUCATION

2011

Third grade through eighth grade, pages 3 through 8

Pages 3 through 8 show new concepts for grades three through eight. On these pages the left hand column contains concepts new to this grade level. This should not be considered an exhaustive list.

The right hand column of this document contains concepts that are contained in Core Content 4.1 at this grade level but have shifted/moved to a different grade level in the Kentucky Core Academic Standards for Mathematics.

High School, pages 9 through 20

Pages 9 through 20 was created using the crosswalk. If a standard had a degree of match (DM) in the crosswalk of '1-weak' or '0-no match' then it was placed in this document.

The left hand column is the standard from the Kentucky Core Academic Standards. The second column is when the concept is to be taught based on the Traditional Pathway in Appendix A. The third column represents the match of the concept to Core Content 4.1. The fourth column represents notes from the crosswalk about the match of the KCAS and the Program of Studies.

Curriculum Shifts – not an exhaustive list

Grades 3 -8 pages contain changes that are new in the Kentucky Core Academic Standards as compared to the Core Content for Assessment, 4.1.

Concepts new to grade level	*Grade*	*Concepts moved from grade 3 to grades listed below*
3.NF.3b • Fractions with denominators of 2, 3, 4, 6, and 8. In CCA 4.1 fractions at this grade level were limited to halves, thirds and fourths. **3.NF.3d** • Comparison of fractions using < and > is now used with fractions that have the same denominator or numerator, In CCA 4.1 comparisons were pictorial representations. • Use visual fraction model to show equivalent fractions. **3.OA.7** • Fluently multiply and divide within 100 knowing from memory all products of two one-digit numbers. **3.OA.5** • The use of commutative and distributive properties, identify patterns and how commutative and distributive properties affect patterns. **3.MD.1** • Time will be measured to the nearest minute. **3.MD.7d** • Concept of area and the formula for area, recognizing that area is additive. **3.MD.8** • Perimeter including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters. **3.G.1** • Understand that shapes with 4 sides make up a larger category; quadrilateral.	3rd	**Kindergarten** • Attributes of three-dimensional shapes are introduced. **1st grade** • Time to the nearest half hour. **2nd grade** • Skip-count by 5s, 10s, and 100s. • Odd and even numbers to 20 are introduced. • Time to the nearest 5 minutes. **4th grade** • Decimal notation for fractions and comparisons of decimal fractions. • Addition and subtraction of fractions • Division with remainders **5th grade** • Graphing in the first quadrant **6th grade** • Probability introduced

Curriculum Shifts – *not an exhaustive list*

Grades 3 -8 pages contain changes that are new in the Kentucky Core Academic Standards as compared to the Core Content for Assessment, 4.1.

Concepts New to Grade Level	Grade	Concepts moved from grade 4 to grades listed below
4.OA.4 • Determine prime and composite numbers (1-100). **4.NF.3b** • Decompose fractions in more than one way, justify decompositions using visual models, multiple representations of fractions. **4.NF.3c** • Properties of operations with mixed numbers with like denominators. **4.NF.4c** • Multiply fractions by a whole number, using visual fraction models and equations to represent the problem. **4.NF.7** • Use decimal notation for fractions with denominators 10 or 100. **4.MD.3** • Apply the area and perimeter formulas for rectangle. **4.MD.4** • Make a line plot to display a data set of measurements in unit fractions. **4.MD.6** • Measure angles in whole number degrees using a protractor. Draw angles of specified measure. **4.MD.7** • Use angle measures to decompose angles. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems. **4.G.2** • Classify two-dimensional figures based presence or absence of attributes (parallel or perpendicular lines).	4th	**Kindergarten** • Attributes of basic three-dimensional objects (spheres, cones, cylinders, pyramids, cubes, triangular and rectangular prisms); apply these attributes to solve real-world problems. • Identify basic two-dimensional figures in different orientations. **3rd grade** • Attributes of two dimensional shapes and shapes that share attributes can define larger categories. • Represent and interpret data-bar graphs and pictographs (also 2nd grade). • The actual process of learning to read a thermometer does not have a standard. It is considered a life skill and is also introduced in science. **5th grade** • Identify and graph ordered pairs on a positive coordinate system (Quadrant 1).

Curriculum Shifts – *not an exhaustive list*

Concepts New to Grade Level	Grade	Concepts moved from grade 5 to grades listed below
5.NF.4b • Areas of rectangles by tiling and multiplying fractional side lengths. **5.G.1** • Coordinate plane, given a point on the graph students will understand the meaning of the points. Graphing by student is limited to first quadrant (**5.G.2**). **5.G.3** • Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. **5.G.4** • Classify two-dimensional figures in a hierarchy based on properties. **5.MD.5a** • Develop and apply formulas for volume of rectangular prism • Measure volume with non-standard and standard units. **5.OA.2** • Write and interpret simple expressions. **5.NF.1** • Add/subtract fractions with unlike denominators formerly limited to 16th and sum less than/equal to one. **5.NF.5** • Interpret multiplication as scaling (resizing). **5.NF.7** • Division of unit fractions by whole numbers and whole numbers by unit fractions. Division of fraction by fraction is not included at this grade.	**5th**	**2nd grade** • Faces and angles are introduced. **3rd grade** • Students will apply standard units of measure to length, weight, temperature and liquid capacity. • Students will use properties of numbers for written and mental computation. • Combine commutative and associative properties to rearrange multiplication exercises such as 4x (7x5) which can be rearranged as (4x5) x7 to simplify the multiplication. **4th grade** • Classifying angles and measuring and constructing angles with a protractor. • Multiple representations of equivalent fractions; compare and order common and mixed fractions. • Add and subtract fractions with common denominators. • Use factors to determine prime and composite numbers. **6th grade** • Three-dimensional objects from two dimensional representations (nets).

Curriculum Shifts – *not an exhaustive list*

Grades 3 -8 pages contain changes that are new in the Kentucky Core Academic Standards as compared to the Core Content for Assessment, 4.1.

Concepts New to Grade Level	Grade	Concepts moved from grade 6 to grades listed below
6.RP • Ratios and Proportional Relationships. Understand ratio concepts and use ratio reasoning to solve problems. **6.NS.4** • Factors now include using the Greatest Common Factor method previously taught in Algebra I to factor an addition or subtraction problem. For example, express 36 + 8 as 4 (9 + 2). **6.NS.5** • Integers, positive and negative numbers are used together to describe quantities having opposite directions or values. **6.NS.8** • Absolute value and graphing in all 4 quadrants. **6.EE.9** • Represent and analyze quantitative relationships between dependent and independent variables. **6.G.1** • Discover area formulas by composing and decomposing into triangles and rectangles. **6.G.4** • Use nets made up of rectangles and triangles to find surface area of three-dimensional figures. **6.SP.4** • Display numerical data using dot plots, histograms, box plots, line plots. **6.SP.5c** • Quantitative measures of center (median, and/or mean) and variability (interquartile range and/or mean absolute deviation.)	6th	**3rd grade** • Area models are used in 3rd grade and students relate them to multiplication to justify the area formula for a rectangle. • Geometric elements(Classifying, shared attributes, quadrilaterals) • Picture and bar graphs (Venn diagrams and circle graphs not addressed in the new standards) **4th grade** • Adding and Subtracting Fractions discovery phase **5th grade** • Fluency in adding and subtracting fractions • Multiplication and Division of fraction x whole number • Graphing in the first quadrant **8th grade** • Reflections when graphing congruence **8th grade** • Congruence • Describe effect of Translations, rotations, reflections, and dilations on two dimensional figures using coordinates

Curriculum Shifts – not an exhaustive list

Grades 3 -8 pages contain changes that are new in the Kentucky Core Academic Standards as compared to the Core Content for Assessment, 4.1.

Concepts New to Grade Level	Grade	Concepts moved from grade 7 to grades listed below
7.RP.2 • Analyze proportional relationships. • Graph proportional relationships and understand the unit rate informally as a measure of the steepness of the related line, called the slope. **7.NS.2** • Integer operations extend to multiplication and division. **7.EE.1** • Apply the properties of operations to add, subtract, factor, & expand linear expressions with *rational* coefficients. **7.G.1** • Solve problems involving scale drawings of geometric figures. **7.G.2** • Informal constructions of geometric shapes with given conditions. **7.G.5** • Use angles relationships from intersecting lines to solve simple equations. **7.G.3** • Describe 2D cross-sections of 3D shapes. **7.G.6** • Surface area of 3D geometric figures & volumes of cubes and right prisms. **7.SP.2** • Random sampling, compound events,	7th	**4th Grade** • Primes, composites, factorization, factors, and multiples **6th Grade** • Least Common Multiples & Greatest Common Factors **2nd through 6th Grades** • Describe and provide example of elements of 2D & 3D figures **6th Grade** • Make & analyze data displays • Graphing in all 4 quadrants **8th Grade** • Congruent & similar figures • Identifying clusters, gaps and outliers

Curriculum Shifts – not an exhaustive list

Grades 3 -8 pages contain changes that are new in the Kentucky Core Academic Standards as compared to the Core Content for Assessment, 4.1.

Concepts New to Grade Level	*Grade*	*Concepts moved from grade 6 to grades listed below*

8.NS.1
• Rational approximation of irrational numbers.
8.EE.3
• Perform operations with numbers expressed in scientific notation.
8.EE.8
• Solve and analyze a system of linear equations with applications to real-world problems.
8.F (Note: entire domain of Functions)
• Define, evaluate and compare functions and use them to model relationships between quantities.
8.G.2
• Explain congruency by using a sequence of rotations, reflections and translations.
8.G.4
• Explain similarity by using a sequence of rotations, reflections, translations and dilations.
8.G.7
• Find unknown lengths using the Pythagorean Thm. (CCA 4.1 find hypotenuse only).
8.G.8
• Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
8.G.9
• Volumes of cylinders, cones and spheres.
 	
8.SP.3
• Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.
	8th	**4th Grade**
		• Measurement of Angles
		7th Grade
		• Ratio and proportional reasoning including interest, %increase/decrease, discounts, etc.
		• Circles
		   • Find area from circumference
		   • Find circumference from area.
		• Volume and surface area of right prisms
		• Operations with rational numbers and estimation strategies.

Curriculum Shifts – *not an exhaustive list*

HIGH SCHOOL– A Quick Comparison of HS KCAS to POS, 2006

Kentucky Core Academic Standards	Course	Program of Studies	Notes
CC.9-12.N.RN.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Alg I	KY.9-12.A.SC.25 Variables, Expressions and Operations: Students will understand the properties of integer exponents and roots and apply these properties to simplify algebraic expressions	POS is not specific to radicals and only includes integer exponents
CC.9-12.A.APR.2 Know and apply the Remainder Theorem: For a polynomial p(x) and a number a, the remainder on division by x – a is p(a), so p(a) = 0 if and only if (x – a) is a factor of p(x).	Alg II	KY.9-12.A.SC.27 Variables, Expressions and Operations: Students will divide a polynomial by a first-degree polynomial KY.9-12.A.SC.31 Variables, Expressions and Operations: Students will add, subtract, multiply, divide and simplify rational expressions	POS does not require students to make the connections between zeros and factors of a polynomial by specifically applying the remainder theorem.

Curriculum Shifts – not an exhaustive list

HIGH SCHOOL – A Quick Comparison of HS KCAS to POS, 2006

Kentucky Core Academic Standards	Course	Program of Studies	Notes
CC.9-12.A.REI.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	Alg II	KY.9-12.A.SC.32 Variables, Expressions and Operations: Students will evaluate polynomial and rational expressions and expressions containing radicals and absolute values at specified values of their variables KY.9-12.N.SC.17 Number Operations: Students will solve realistic problems to a specified degree of accuracy KY.9-12.A.SC.30 Variables, Expressions and Operations: Students will determine when an expression is undefined	POS requires students to evaluate rational expressions that contain radical but POS does not specify solving rational and radical equations and providing examples of how extraneous solutions may arise. The development of the skill is there.
CC.9-12.A.REI.4a Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x – p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.	Alg I	No match found	No match found
CC.9-12.A.REI.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line $y = –3x$ and the circle $x^2 + y^2 = 3$.	Alg I	KY.9-12.A.SC.38 Equations and Inequalities: Students will solve systems of two linear equations in two variables	POS only requires 2 linear equations not linear and quadratic

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Kentucky Core Academic Standards	Course	Program of Studies	Notes
CC.9-12.F.IF.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*	Alg I Alg II	KY.9-12.A.SC.10 Patterns, Relations and Functions: Students will determine the domain of a function represented in either symbolic or graphical form	POS has no context standards for domain of function.
		KY.9-12.A.SC.11 Patterns, Relations and Functions: Students will understand functional notation and evaluate a function at a specified point in its domain	
CC.9-12.F.IF.8a Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.	Alg I	KY.9-12.A.SC.40 Equations and Inequalities: Students will solve quadratic equations in one variable	POS only refers to quadratic functions and solving by graphing. Solving quadratics equations in one variable.
		KY.9-12.A.SC.48 Equations and Inequalities: Students will graph a quadratic function and understand the relationship between its real zeros and the x-intercepts of the graph	

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Kentucky Core Academic Standards	Course	Program of Studies	Notes
CC.9-12.F.BF.3 Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	Alg I Alg I	No match found	No match found
CC.9-12.F.BF.4 Find inverse functions.	Alg I	No match found	No match found
CC.9-12.F.BF.4a Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. For example, f(x) =2(x^3) or f(x) = (x+1)/(x-1) for x ≠ 1 (x not equal to 1).	Alg I	No match found	No match found
CC.9-12.F.LE.1a Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals.*	Alg I	KY.9-12.A.SC.42 Equations and Inequalities: Students will graph a linear equation and demonstrate that it has a constant rate of change KY.9-12.A.SC.13 Patterns, Relations and Functions: Students will graph linear, absolute value, quadratic and exponential functions and identify their key characteristics	POS does not require students to explore or prove equal differences or equal factors.
CC.9-12.F.LE.1b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.*	Alg I	KY.9-12.A.SC.42 Equations and Inequalities: Students will graph a linear equation and demonstrate that it has a constant rate of change	POS limited to linear equation and rate of change only

Curriculum Shifts – not an exhaustive list

HIGH SCHOOL – A Quick Comparison of HS KCAS to POS, 2006

Kentucky Core Academic Standards	Course	Program of Studies	Notes
CC.9-12.F.LE.1c Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.*	Alg I	Match not found	Match not found
CC.9-12.F.LE.4 For exponential models, express as a logarithm the solution to ab^(ct) = d where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.*	Alg II	Match not found	Match not found
CC.9-12.F.TF.1 Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	Alg II –	Match not found	Match not found
CC.9-12.F.TF.2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	Alg II	No match found	No match found
CC.9-12.F.TF.5 Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.*	Alg II	KY.9-12.M.SC.8 Measuring Physical Attributes: Students will explore periodic real-world phenomena, using technology (e.g., graphing calculator) as appropriate KY.9-12.A.SC.5 Patterns, Relations and Functions: Students will understand and compare the properties of classes of functions (e.g., absolute value, step, exponential, polynomial, rational, logarithmic, periodic)	POS not specific to trig functions

HIGH SCHOOL – A Quick Comparison of HS KCAS to POS, 2006

Kentucky Core Academic Standards	*Course*	*Program of Studies*	*Notes*
CC.9-12.G.CO.5 Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	Geo	KY.9-12.G.SC.14 Transformations of Shapes: Students will understand and represent transformations within a plane (translations, reflections, rotations and dilations) of figures by using sketches, coordinates, vectors, function notation, matrices and technology	POS does not require students to move past representing.
CC.9-12.G.CO.6 Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	Geo	KY.9-12.G.SC.4 Shapes and Relationships: Students will use the definitions, properties and theorems about congruent and similar triangles and other figures to prove additional theorems and apply these to solve real-world problems KY.9-12.G.SC.15 Transformations of Shapes: Students will use various representations, including electronic displays, to understand the effects of simple transformations within a plane and compositions of transformations	POS does not require students to use descriptions of rigid motion to predict or determine congruency.
CC.9-12.G.CO.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	Geo	KY.9-12.G.SC.15 Transformations of Shapes: Students will use various representations, including electronic displays, to understand the effects of simple transformations within a plane and compositions of transformations	POS does not require students to use descriptions of rigid motion to predict or determine congruency.
CC.9-12.G.CO.8 Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	Geo	KY.9-12.G.SC.4 Shapes and Relationships: Students will use the definitions, properties and theorems about congruent and similar triangles and other figures to prove additional theorems and apply these to solve real-world problems	POS does not require students to use descriptions of rigid motion to predict or determine congruency.

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Kentucky Core Academic Standards	Course	Program of Studies	Notes
CC.9-12.G.CO.13 Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	Geo	KY.9-12.G.SC.1 Shapes and Relationships: Students will identify and apply the definitions, properties and theorems about line segments, rays and angles and use them to prove theorems in Euclidean geometry, solve problems and perform basic geometric constructions using a straight edge and a compass	POS does not specify inscribing in a circle
CC.9-12.G.SRT.4 Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.	Geo	KY.9-12.G.SC.4 Shapes and Relationships: Students will use the definitions, properties and theorems about congruent and similar triangles and other figures to prove additional theorems and apply these to solve real-world problems	POS vague - CCSS specific
CC.9-12.G.SRT.6 Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	Geo	KY.9-12.M.SC.5 Measuring Physical Attributes: Students will explore the relationships between the right triangle trigonometric functions, using technology (e.g., graphing calculator) as appropriate	POS "will explore" CCSS "understand"
CC.9-12.G.C.1 Prove that all circles are similar.	Geo	KY.9-12.G.EU.4 Students will understand that similarity of figures and scale factors are used to analyze and solve problems.	POS not specific to circles
CC.9-12.G.C.3 Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	Geo	No match found	No match found
CC.9-12.G.C.5 Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.	Geo	No match found	No match found

Curriculum Shifts – *not an exhaustive list*

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Kentucky Core Academic Standards	Course	Program of Studies	Notes
CC.9-12.G.GPE.2 Derive the equation of a parabola given a focus and directrix.	Geo	KY.9-12.A.SC.13 Patterns, Relations and Functions: Students will graph linear, absolute value, quadratic and exponential functions and identify their key characteristics	POS does not specifically require students to know or derive the focus or directrix of a parabola.
CC.9-12.G.GPE.4 Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, $\sqrt{3}$) lies on the circle centered at the origin and containing the point (0, 2).	Geo	KY.9-12.G.SC.26 Foundational Statements: Students will establish the validity of geometric conjectures using deduction, prove theorems and critique arguments made by others	POS does not specify algebraically
CC.9-12.G.GMD.1 Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.	Geo	KY.9-12.M.EU.3 Students will understand that measurements are determined by using appropriate techniques, tools, formulas and degree of accuracy needed for the KY.9-12.M.SC.3 Measuring Physical Attributes: Students will determine the surface area and volume of right rectangular prisms, pyramids, cylinders, cones and spheres in realistic problems situation.	POS requires students to use formulas but defend the formulas. There is no mention of dissecting or using Cavaleri's principle
CC.9-12.G.MG.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*	Geo	No match found	No match found

Curriculum Shifts – not an exhaustive list

HIGH SCHOOL – A Quick Comparison of HS KCAS to POS, 2006

Kentucky Core Academic Standards	Course	Program of Studies	Notes
CC.9-12.G.GMD.1 Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.	Geo	KY.9-12.M.EU.3 Students will understand that measurements are determined by using appropriate techniques, tools, formulas and degree of accuracy needed for the situation. KY.9-12.M.SC.3 Measuring Physical Attributes: Students will determine the surface area and volume of right rectangular prisms, pyramids, cylinders, cones and spheres in realistic problems	POS requires students to use formulas but defend the formulas. There is no mention of dissecting or using Cavaleri's principle
CC.9-12.G.MG.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*	Geo	No match found	No match found
CC.9-12.S.ID.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.*	Alg I	KY.8.D.SC.7 Characteristics of Data: Students will determine and interpret the mean, median, mode and range of a set of data KY.9-12.D.SC.9 Characteristics of Data Sets: Students will describe the shape and select and calculate summary statistics for univariate measurement data, using technological tools as necessary. KY.8.D.SC.1 Data Representations: Students will collect, organize, construct, analyze and make inferences from data in a variety of graphical methods (e.g., drawings, tables/charts, pictographs, bar graphs, circle graphs, line plots, Venn diagrams, line graphs, stem-and-leaf plots, scatter plots, histograms, box-and-whiskers plots)	No standard deviation or interquartile range specified - even box and whiskers is included in list.

HIGH SCHOOL – A Quick Comparison of HS KCAS to POS, 2006

Kentucky Core Academic Standards	Course	Program of Studies	Notes
CC.9-12.S.ID.5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.*	Alg I	KY.9-12.D.SC.34 Probability: Students will explain how the relative frequency of a specified outcome of an event can be used to estimate the probability of the outcome

KY.9-12.D.SC.1 Data Representations: Students will be familiar with the definitions of measurement data and categorical data, univariate and bivariate data and the term variable.

KY.8.D.SC.1 Data Representations: Students will collect, organize, construct, analyze and make inferences from data in a variety of graphical methods (e.g., drawings, tables/charts, pictographs, bar graphs, circle graphs, line plots, Venn diagrams, line graphs, stem-and-leaf plots, scatter plots, histograms, box-and-whiskers plots) | POS not specific - loose link |
| **CC.9-12.S.ID.6b Informally assess the fit of a function by plotting and analyzing residuals.*** | Alg I | KY.9-12.D.SC.11 Characteristics of Data Sets: Students will determine regression coefficients, regression equations and correlation coefficients for bivariate data using technological tools

KY.9-12.D.SC.12 Characteristics of Data Sets: Students will apply line-of-best fit equations for a set of two-variable data to make predictions

KY.9-12.D.SC.13 Characteristics of Data Sets: Students will collect, organize and display bivariate data and use a curve of best fit as a model to make predictions | POS does not require assessing the fit or analyzing residuals - |

HIGH SCHOOL – A Quick Comparison of HS KCAS to POS, 2006

Kentucky Core Academic Standards	Course	Program of Studies	Notes
CC.9-12.S.ID.5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.*	Alg I	KY.9-12.D.SC.34 Probability: Students will explain how the relative frequency of a specified outcome of an event can be used to estimate the probability of the outcome KY.9-12.D.SC.1 Data Representations: Students will be familiar with the definitions of measurement data and categorical data, univariate and bivariate data and the term variable KY.8.D.SC.4 Data Representations: Students will relate different representations of data (e.g., tables, graphs, diagrams, plots) and explain how misleading representations affect interpretations and conclusions about data	POS not specific - loose link
CC.9-12.S.ID.6b Informally assess the fit of a function by plotting and analyzing residuals.*	Alg I	KY.9-12.D.SC.11 Characteristics of Data Sets: Students will determine regression coefficients, regression equations and correlation coefficients for bivariate data using technological tools KY.9-12.D.SC.12 Characteristics of Data Sets: Students will apply line-of-best fit equations for a set of two-variable data to make predictions KY.9-12.D.SC.13 Characteristics of Data Sets: Students will collect, organize and display bivariate data and use a curve of best fit as a model to make predictions	POS does not require assessing the fit or analyzing residuals

HIGH SCHOOL – A Quick Comparison of HS KCAS to POS, 2006

Kentucky Core Academic Standards	Course	Program of Studies	Notes
CC.9-12.S.IC.4 Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.*	Alg II	KY.9-12.M.SC.2 Measuring Physical Attributes: Students will analyze precision, accuracy and approximate error in measurement situations	POS Data Analysis and Probability does not include lacks population mean or proportion and is not specified to developing margin a error. Linked standard is found in measurement
CC.9-12.S.IC.5 Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.*	Alg II	KY.9-12.D.SC.15 Characteristics of Data Sets: Students will understand how simple statistics reflect the values of population parameters and use sampling distributions as the basis for informal inference	POS no comparison using two treatments or use of simulations related to stat sig
CC.9-12.S.CP.7 Apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model.*	Geo	KY.9-12.D.SC.32 Probability: Students will compute the probability of a compound event	POS is not specific to the addition rule and does not require interpretation of the findings